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ABSTRACT

This paper presents an alternative to student questionnaires for the evaluation of teaching quality, which is defined as maximizing students' academic attainment and the satisfaction of students and the lecturer with the course. The approach aligns students' and the teacher's expectations for change during the course. Previous research has identified three fundamental abilities that lecturers seek to change during the course: (1) technical skills; (2) professional competence; and (3) professional attitudes. A Three Ability Framework (3AF) has been developed to compare students' assessments of the change in these three abilities with the instructor's perceptions of change. The alignment between these evaluations, expressed as the result of subtracting student-rated change from lecturer-rated change, is a figure that can be used as the effective teaching score. To use the 3AF in practice, lecturers explain the abilities to their students, and then ask for ratings at desired time points during the course. This method promotes a positive teaching and learning culture in direct and indirect ways. (Contains 33 references.) (SLD)

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An Alternative Method of Measuring Teaching Quality

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Abstract

This paper presents an alternative to student opinnionnaires for the evaluation of teaching quality. Teaching quality is operationally defined here as maximising students' academic attainment and lecturer's and students' satisfaction with the course. This new theoretical approach is to align student's and lecturer's expectations for change during the course. Previous research has identified three fundamental abilities that lecturers seek to change through their teaching and has indicated that when students and lecturers are working towards the same changes in these abilities the students have higher academic attainment and greater course satisfaction - and the lecturer finds more enjoyment in teaching those students.

This method takes about 5 minutes to administer and so can be used two or three times during a course to keep teaching on track. The spin-offs are that many assessment based problems can be avoided and the lecturer can get real-time feedback on his or her teaching. The method results in a single decision point number for assessment of quality teaching.

Introduction

This paper introduces a student evaluation method of assessing teaching quality that is an alternative to the student opinnionnaires that are traditionally used. Detractors of the traditional approach have likened it to a popularity contest that can lead to grade inflation, have said that anonymous evaluations lack the legal validity necessary for tenure and promotion decisions, say it can be considered as a restriction on academic freedom, that the Likert statistics are erroneously processed, that the resulting numbers are of little use for feedback, that alternative open responses are too costly to process, etc.

The aim of this method is to avoid all of these problems, yet result in a single decision point number that is a measure of teaching quality. In addition the method aims to offer on-going course monitoring rather than the traditional 'post-mortuum' evaluation. The method uses an 'alignment' theory instead of opinnionnaires. This is a significant theoretical change. The method has wide educational significance because teaching evaluations are widely used.

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Major problems with the uses of student evaluations of teaching

The use of student opinionnaires for the assessment of faculty teaching is now widespread in the Europe and the USA (Crumbley, 1995; Husbands & Fosh, 1993; Seldin, 1984, 1993; Yunker & Sterner, 1988). Within each institution the results from the same set of forms are used to serve multiple purposes; for feedback to lecturers for improving their teaching, for publication to the student body for course registration decisions, for administrative course evaluation, and for promotion and tenure decisions (Kolevzon, 1981, Avi-Itzhak & Lya, 1986). However, it seems that student evaluations are failing to satisfactorily serve any of these purposes (Greenwald, 1997; Greenwald & Gillmore, 1997; Howard & Maxwell, 1982; Marsh & Dunkin, 1997; Marsh & Roche, 1997, 1998).

There are widespread doubts about the validity of these forms; if they really do assess the quality of teaching, and whether students are qualified assessors (Chacko, 1983; Dowell & Neal, 1982; Powell, 1977; Snyder & Clair, 1976; Vasta & Sarmiento, 1979; Worthington & Wong, 1979). A major problem is the influence that their use for faculty employment decisions is having on the conduct of university teaching and course assessment. "The higher education rhetoric is almost universal in stating that the primary purpose of faculty evaluation is to help faculty improve their performance. However, an examination of the systems used indicates that the primary purpose is almost always to make personnel decisions. That is, to make decisions for retention, promotion, tenure, and salary increases." (Cashin, 1996). Students rating reflects the philosophy of customer service satisfaction - how much the lecturer met their requirements of being able to pass the course without an inconvenient workload and tedious attendance. This invites negative evaluations from students in the lower attainment and attendance range of the class. The most expedient career solution is to teach entertainingly at lower standards and use the time saved for career building research (Greenwald, 1996; Greenwald & Gillmore, 1966; DuCette & Kenney, 1982; Goldberg & Callahan, 1991; Kemp & Kuman, 1990). This common solution has reversed the first intention of student evaluation which was to improve the quality of teaching (Rebell, 1990). Student ratings also extend to course enjoyment and this can attract negative evaluations at all levels of student ability if the lecturer presents information at odds with their current values (Dershowitz, 1994; Stone, 1995).

Improving teaching and learning

How can we use assessment to improve teaching and learning? The literature indicates that is one that encourages staff and students to be independent critical thinkers developing the attitudes and values of their profession. One where students and faculty value and enjoy the work they are doing. One where faculty and students respectfully work together based on a foundation of mutual trust. However, if an alternative method of assessment is to promote these changes, then first, that method must accommodate the wide institutional variations that exist in assessment preferences and aim to improve teaching and learning by allowing those lecturers who use it to appreciate more fitting styles of teaching and enable them to allow their students to adopt more fitting styles of learning. Secondly, an alternative method of assessing teaching and learning must resolve the misunderstandings and confusions about mutual expectations in order to avoid the problems that lead to a negative teaching and learning culture. Thirdly, an alternative method must promote a positive teaching and learning culture by (i) ensuring students and faculty understand each other's expectations and (ii) by ensuring that students and faculty are both working towards the same expectations (Abrami, d'Apollonia, & Cohen, 1990; Abrami, 1989; Bastick, 1995; Bortz, 1984; L'Hommedieu, Menges, & Brinko, 1990; Miller, 1986; Scriven, 1994, 1995).

It is also important to separate evaluations of attainment from evaluations of enjoyment, so that student evaluations of course enjoyment are not simply 'smile sheets' misused as assessments of academic attainment (Hake, in press). Hence, the two separate criteria of effective teaching used by this alternate method of assessment are to maximise (i) the academic attainment of the students and (ii) the students' and the lecturer's enjoyment of the course. The measurable indicator of effective teaching used is that the students and the lecturer are working towards the same expectations. The construct validity that this measurable indicator assesses the criteria is $p<0.01$ for both (i) and (ii) (Bastick, 1995)

Interviews with faculty on professional courses have indicated that their implicit expectations can be described and assessed in terms of three abilities (i) technical skills - rote learning, assessed by the accuracy of reproduction (ii) professional competence - appropriate transfer of skills to a novel situation, assessed by the justification of appropriateness and (iii) professional attitudes - the integration of one's life and work by one's values and beliefs, assessed by demonstration (Bastick, 1995). Faculty can be assisted in making these expectations explicit and in designing coursework and examinations that offer opportunities for assessing these three abilities. This professional development can be expected to improve the quality of their teaching (Askew, Brown, Rhodes, Wiliam, & Johnson, 1997). It should be their professional prerogative to decide, and justify to their peers and their students, the emphasis they judge should be given to each of the three abilities on their courses. These judgements will depend on the subject, its level and the professional inclination of the lecturer. For example, lecturers on B.Ed courses expect an emphasis on technical skills in the first year, moving to an emphasis on professional competence in the second year and a greater emphasis on professional attitudes in the third year.

The Three Ability Framework (3AF)

Three Ability Framework (3AF) is a complete alternative to post-mortem student opinionnaires and their attendant problems. The design of its management framework incorporates the positive influences mentioned above to enhance teaching/learning culture to the advantage of the institution, faculty and students. One part of the management framework is the use of the 3AF feedback form. The 3AF feedback form has only 6 necessary ratings that take less than 5 minutes to complete. Hence, the form can conveniently be used many times by the lecturer during the course for in-course tracking of teaching quality. At the end of the course it can be used by the administration to give a single decision point number representing the quality of teaching. This is also fairer and less threatening to faculty who, by previous uses of the form, have had opportunities to respond to the feedback and so improve the course for their students and for themselves. As mentioned above, previous research has connected teaching and assessment problems on professional courses with staff/student mis-matched expectations of three abilities. These three abilities are technical skills, professional competence and professional attitudes (Bastick, 1995). The 3AF uses the matching of staff/student expectations on these three abilities as the basis of teaching effectiveness.

The 3AF form asks for two ratings of each of these abilities; ratings of how it is now on the course and ratings of how the student would want it to be. A version of this form is shown in figure 1. Each institution or faculty member may be interested in collecting extra information to allow for comparisons of how the quality of teaching affects subgroups of students taking the course. The form takes longer to complete when additional information is requested.

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Course Assessment - Skills, Competence and Attitudes

Before completing this form the concepts of Skills, Competence and Attitudes were explained to you.

How completely do you understand these concepts [ ] Your estimate out of 100 *Write a Number in this box*

Course code _____ Date _____ Please print name and ID _____

This course assessment is part of a continuous monitoring of your course to take account of your attitudes and opinions. It should take about 5 minutes to complete. Your individual answers will remain confidential. Only group data will be published

Sex _____ Age _____ Program _____ Option _____ Years of teaching experience _____

Estimate, for you personally, how much this course emphasises, and should emphasise (i) Skills, (ii) Competence and (iii) Attitudes? Do this for both how the course **is now**, and for how the course **should be** - *write a number in each box.*

	As it **is now** on this course	As it **should be** on this course	
(i) Emphasis on Skills *(getting it right)*	[ ] Your estimate out of 100	[ ] Your estimate out of 100	*Write a Number in each box*
(ii) Emphasis on Competence *(knowing why)*	[ ] Your estimate out of 100	[ ] Your estimate out of 100	*Write a Number in each box*
(iii) Emphasis on Attitudes *(relevance to your life)*	[ ] Your estimate out of 100	[ ] Your estimate out of 100	*Write a Number in each box*

How much so far have **you enjoyed your experience of** the teaching on this course? [ ] Your estimate out of 100 *Write a Number in the box*

Figure 1: Typical 3AF feedback form asking for two ratings of each of the three abilities and additional information on targeted subgroups

Brief description of the three abilities and their assessment

Technical Skills refer to the traditional speed and accuracy of reproducing facts and processes and is assessed by timed accuracy of reproduction. Professional competence refers to the ability to use the skills in a novel situation or extend these skills in a novel way. The assessment is by justification of the appropriateness of what is done. Professional attitudes refers to values that are appropriate to the subject. They are assessed by demonstration in practical situations.

From the difference in each pair of ratings it is possible to calculate each student's expectation for change in that ability. The lecturer completes the same ratings at the same time, and from the lecturer's form it is possible to also calculate, in the same way, the lecturer's expectations for change in each of the three abilities. Previous research has shown that when the students' expectations are the same as the lecturer's, that is both students and lecturer are working towards the same degree of change (indicator of effectiveness), then students get high grades and both the lecturer and the students enjoy the course (criteria of effectiveness). The correlations between the in-course indicators and the post-course criteria are significant at $p \leq 0.002$, with n=56 (Bastick, 1995).

Measuring effectiveness of teaching (ET)

The 3AF involves more than using the feedback form and calculating the results. There are four steps in the application of the method.

1. Pre-course peer justification of ratings

In the design stage, before the course starts, the lecturer needs to use his/her professional expertise to decide on what should be the emphasis on the course for each of the three abilities. A rationale should justify this decision, and it needs to be peer agreed. The lecturer can then build his/her expectations of the three abilities into the teaching and the design of course assignments that give students the opportunities to demonstrate the required level of each ability.

2. Explain and justify three abilities to students

Near the beginning of the course the lecturer needs to make sure the students understand the three abilities and how they will be taught and assessed through the content of the course.

3. Monitor 'as-is' and 'should-be' for students and lecturer

The 3AF feedback form is completed by students and the lecturer when the lecturer is ready to monitor the course, or the administration is ready to assess the teaching.

4. Calculating the effectiveness of teaching

This is done in the following two stages (a) and (b).

a) Calculate expected change for each student and lecturer:

Change=('should-be'-'as-is')/'as-is'

b) Calculate alignment:

Alignment= | Lecturer change-Student change |

Zero is the perfect score

The alignment is the Effective Teaching (ET) score. The ET score can be calculated for each student or as a mean for any group of students. Hence, the effectiveness of teaching can be monitored for any target group of interest - older students, students taking special electives, minority groups, gender balance, etc. Adjustments can be made to in-course teaching as necessary.

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Safeguards from variation in students' set expectations

Students' expectations vary across Faculties and subjects, by years of education, previous experience and even by whether the course is compulsory or optional (Goldman, 1993). This creates an 'unlevel playing field' when traditional opinionnaires are used to assess faculty teaching. From the 3AF feedback form the variation in students' expectations can be calculated and the result used as a safeguard to protect the lecturer from inappropriate student expectations. It will be realized that all course evaluations depend on matching student expectations to the expectations of the course. Some aspects of the course can be presented in different ways to match different student expectations. For example, so called 'learning styles' can be matched by adopting different 'teaching styles'. However, some aspects of the course may not be open to change to match student expectations, e.g. externally accredited content standards or the peer agreed emphases of the three abilities. Just as students expectations vary so does the flexibility of their expectations. If students' expectations of these unchangeables cannot be altered to accept them, then teaching ratings will go down through no fault of the lecturer. Traditional opinionnaires penalize the lecturer because they make no allowance for large variations in unchangeable student expectations. However, the 3AF allows the lecturer to show evidence that the original peer agreed emphases may not be appropriate for some groups on the course. This evidence can be used to either change the course expectations or change the student selection criteria.

Institutional commitment to staff development

The full Framework includes the commitment of the institution to develop faculty's ability to use their subject specialism as a vehicle for explaining, teaching and assessing the three abilities. Institutional staff development support includes promoting academic freedom and professional responsibility, assisting faculty in making expectations explicit, in designing assessment opportunities for the three abilities and developing the ability of faculty to teach the three abilities using the content of their subject areas. As was mentioned at the start of this article, there is a saying in business that "what gets measured gets done and what gets rewarded gets repeated" (Friend, 1972). Quality teaching and quality learning get measured and get rewarded by the 3AF.

Summary of how the 3AF and how it promotes a positive teaching and learning culture

To use the 3AF in practice, lecturers explain to their students the three abilities and how they will be taught and assessed. When they wish to monitor the effectiveness of their teaching they ask the students to rate how they see the current emphasis of these three abilities and to rate how they would prefer the emphasis to be. The lecturer makes the same rating of the course. The indicator of effective teaching is that the students and the lecturer are working towards the same changes. This is measured by 'the change expected by the students' subtracted from 'the change expected by the lecturer'. Zero is the perfect score on the total of the three abilities, and indicates perfect alignment. The alignment score is the measure of effective teaching and can be calculated for individual students, and the mean calculated for minority groups or for special comparisons e.g. to measure if the teaching more effective for males than for females.

The method promotes a positive teaching and learning culture both directly and indirectly. It promotes a positive teaching and learning culture indirectly by encouraging forms of teaching and learning that faculty and students use to increase their valued assessment results, i.e. assessment driven teaching and learning. Namely, this method encourages teaching and learning that promotes students' critical and evaluative thinking, high standards in technical skills and professional values because this is what is assessed in faculty teaching and in students learning.

The assessment method also promotes a positive teaching and learning culture directly through student and faculty assessment support processes, as follows:

1. The institution promotes academic freedom and professional responsibility by confirming the lecturers' professional prerogative to decide, and justify to their peers and their students, the emphasis they judge should be given to each of the three abilities on their courses. This is reinforced by recognising an assessment process that lecturers control.

2. The institution promotes professional development by assisting faculty in making their professional expectations explicit in terms of the three abilities in their subject area and in assisting them to design coursework and examinations that offer opportunities for assessing these three abilities in their subjects.

3. Faculty encourage students' critical and evaluative thinking, to the extent faculty can justify this as desirable, by not assessing the correctness of professional competence, but by assessing the students' justifications of why the novel aspects of their applications are appropriate.

4. Faculty explicitly encourage professional attitudes, to the extent they can justify these as desirable, by assessing demonstrations of professional attitudes on course assignments.

Generally, the development of technical skills is already well served by traditional methods of assessment. However, an interesting staff development programme would be to share methods of teaching professional competence and professional values.

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